What is claimed is:

1. A device for retracting a plunger through a fluid-filled chamber of a syringe to draw a predetermined amount of air into the syringe, said device comprising:

an injector body defining an axis;

a locking ring mounted on said injector body for rotation about said axis to secure the syringe to said injector body;

a gripper having an aperture, said gripper being mounted on said injector body and centered on said axis to receive the plunger through said aperture;

a means mounted on said injector body for selectively moving said gripper in response to a rotation of said locking ring between a first orientation wherein said gripper is substantially perpendicular to said axis to allow an axial movement of the plunger through said aperture relative to said gripper, and a second orientation wherein said gripper is tilted relative to said axis to engage said gripper with the plunger to prevent an axial movement of the plunger through said aperture relative to said gripper; and

a means for retracting the plunger through a predetermined distance in response to a rotation of said locking ring when said gripper is in said second orientation to draw the predetermined amount of air into the syringe.

2. A device as recited in claim 1 wherein said gripper is shaped as a ring.

3. A device as recited in claim 1 wherein said retracting means comprises a face cam having a cam surface, said face cam mounted on said locking ring, and a push rod having a first end resting on said cam surface and a second end in contact with said gripper to retract said plunger in response to the rotation of said locking ring to secure said syringe.

4. A device as recited in claim 3 further comprising a means for biasing said gripper into said first orientation.

5. A device for retracting a plunger through a fluid-filled chamber of a syringe to draw a predetermined amount of air into the syringe, said device comprising:

an injector body for holding the syringe, said injector body defining an axis;

a locking ring mounted on said injector body for rotation about said axis to secure said syringe to said injector body;

a face cam mounted on said locking ring for rotation therewith; and

a means responsive to a rotation of said face cam for engaging and retracting said plunger to draw the predetermined amount of air into the syringe.

6. A device as recited in claim 5 wherein said engaging and retracting means comprises a gripper ring having an aperture, said gripper ring being mounted on said injector body and centered on said axis to receive the plunger through said aperture, said engaging and retracting means further comprising a push rod having a first end resting on said cam surface and a second end in contact with said gripper ring to tilt said gripper ring relative to said axis and engage said plunger with said gripper ring in response to a first rotation of said face cam and move said plunger through a predetermined distance to retract said plunger in response to a second rotation of said face cam.

7. A device as recited in claim 6 further comprising a means for biasing said gripper ring into an orientation wherein said gripper ring is substantially perpendicular to said axis.

8. A device for creating an air pocket in a syringe chamber with the air pocket having a volume proportion to the amount of fluid medicament in the syringe chamber, the syringe chamber having a distal end and a proximal end, said device comprising:

a plunger for insertion into said proximal end of said syringe chamber to expel fluid medicament from said distal end of said syringe chamber, said plunger being formed with a tapered section having a proximally decreasing diameter;

an injector body defining an axis;

a locking ring mounted on said injector body for rotation about said axis to secure said syringe chamber to said injector body;

a gripper ring formed with an aperture and having a periphery, said gripper ring being mounted on said injector body and centered on said axis to receive said tapered section of said plunger within said aperture; and

a means mounted on said injector body for moving a portion of said periphery through a pre-determined distance in response to a rotation of said locking ring, said distance having a first component for tilting said gripper ring relative to said axis to engage said gripper ring with said tapered section of said plunger, and a second component for moving said gripper ring and said plunger axially to create an air pocket in said syringe, wherein said second component of said distance increases with an increasing amount of fluid medicament in the syringe chamber to create an air pocket in the syringe chamber having a volume proportional to the amount of fluid medicament in the syringe chamber.

9. A device as recited in claim 8 wherein said moving means comprises a face cam having a cam surface, said face cam mounted on said locking ring for rotation therewith, and a push rod having a first end resting on said cam surface and a second end in contact with said portion of said periphery of said gripper ring to move said portion of said periphery of said gripper ring through said pre-determined distance in response to the rotation of said locking ring to secure said syringe chamber.